

APPLICANT(S): LI, Yingxue et al.
SERIAL NO.: 10/696,988
FILED: October 30, 2003
Page 2

AMENDMENTS TO THE CLAIMS

Please add or amend the claims to read as follows, and cancel without prejudice or disclaimer to resubmission in a divisional or continuation application claims indicated as cancelled:

1. (Original) A method for processing receive diversity signals, comprising:
 - receiving a downlink signal at a plurality of antennas of a mobile device, the downlink signal comprising information;
 - generating a plurality of diversity signals associated with the downlink signal, each of the plurality of antennas operable to generate a diversity signal of the plurality of diversity signals;
 - applying a delay to at least one of the plurality of diversity signals, the delay being less than one chip duration; and
 - processing the plurality of diversity signals using the delay to obtain the information, the delay operable to allow at least two diversity signals associated with the downlink signal to be distinguishable.
2. (Original) The method of claim 1, wherein the delay comprises a delay of 0.4 to 0.8 microseconds.
3. (Original) The method of claim 1, further comprising summing the plurality of diversity signals after applying the delay to yield a combined signal comprising the delayed at least one of the plurality of diversity signals.

APPLICANT(S): LI, Yingxue et al.

SERIAL NO.: 10/696,988

FILED: October 30, 2003

Page 3

4. (Original) The method of claim 3, wherein processing the plurality of diversity signals to obtain the information further comprises:

separating the combined signal in the time domain to yield a plurality of fingers, the plurality of fingers corresponding to the plurality of diversity signals, at least one finger of the plurality of fingers comprising the delay;

coherently combining the plurality of fingers to yield a combined symbol signal, the combined symbol signal corresponding to the downlink signal; and

decoding the combined symbol signal to generate the information.

5. (Original) The method of claim 3, further comprising converting the combined signal from analog mode to digital mode.

6. (Original) The method of claim 1, wherein generating the plurality of diversity signals further comprises filtering each of the diversity signals received from the plurality of antennas.

7. (Original) A system for processing receive diversity signals, comprising:

a plurality of antennas operable to:

receive a downlink signal, the downlink signal comprising information; and

generate a plurality of diversity signal associated with the downlink signal, each of the plurality of antennas operable to generate a diversity signal of the plurality of diversity signals;

a delay module coupled to the plurality of antennas and operable to apply a delay to at least one of the plurality of diversity signals, the delay being less than one chip duration; and

a processor coupled to the delay module and operable to process the plurality of diversity signals using the delay to obtain the information, the delay operable to

APPLICANT(S): LI, Yingxue et al.

SERIAL NO.: 10/696,988

FILED: October 30, 2003

Page 4

allow at least two diversity signals associated with the downlink signal to be distinguishable.

8. (Original) The system of claim 7, wherein the delay comprises a delay of 0.4 to 0.8 microseconds.

9. (Original) The system of claim 7, further comprising an antenna combiner operable to:

sum the plurality of diversity signals after applying the delay; and
yield a combined signal comprising the delayed at least one of the plurality of diversity signals.

10. (Original) The system of claim 9, further comprising an analog-to-digital converter operable to convert the combined signal from analog mode to digital mode.

11. (Original) The system of claim 9, wherein the processor further comprises:

a rake receiver module operable to:

separate the combined signal in the time domain to yield a plurality of fingers,
the plurality of fingers corresponding to the plurality of diversity signals,
at least one finger of the plurality of fingers comprising the delay; and
coherently combine the plurality of fingers to yield a combined symbol signal,
the combined symbol signal corresponding to the downlink signal; and

a decoder coupled to the rake receiver module and operable to decode the combined symbol signal to generate the information.

12. (Original) The system of claim 11, wherein the processor comprises a baseband processor.

APPLICANT(S): LI, Yingxue et al.

SERIAL NO.: 10/696,988

FILED: October 30, 2003

Page 5

13. (Original) The system of claim 7, further comprising a plurality of filters, each filter of the plurality of filters coupled to an antenna of the plurality of antennas and operable to filter each of the diversity signals received from the plurality of antennas.

14. (Original) A method for processing transmit diversity signals, comprising:
receiving a transmit signal at a splitter, the transmit signal comprising information;
splitting the transmit signal into a plurality of split signals;
applying at least one delay to at least one of the plurality of split signals to yield a plurality of transmit diversity signals; and
transmitting the plurality of transmit diversity signals at a plurality of antennas in order to process the plurality of transmit diversity signals, the transmit diversity signals comprising the information.

15. (Original) The method of claim 14, wherein the at least one delay comprises a delay in the range between 0.25 microseconds and ten microseconds.

16. (Original) The method of claim 14, wherein: the at least one delay comprises a first delay and a second delay, the first delay being less than the second delay; and applying the at least one delay to the at least one of the plurality of split signals further comprises: introducing the first delay at a first split signal of the plurality of split signals; and introducing the second delay at a second split signal of the plurality of split signals.

17. (Original) The method of claim 16, wherein the first delay comprises a delay in the range between 0.25 microseconds and five microseconds.

APPLICANT(S): LI, Yingxue et al.
SERIAL NO.: 10/696,988
FILED: October 30, 2003
Page 6

18. (Original) The method of claim 16, wherein the second delay comprises a delay in the range between 0.5 microseconds and ten microseconds.

19. (Original) The method of claim 14, wherein applying at least one delay to at least one of the plurality of split signals further comprises buffering the at least one of the plurality of split signals to introduce the at least one delay.

20. (Original) A system for processing a transmit signal, comprising:

a splitter operable to:

receive a transmit signal, the transmit signal comprising information; and
split the transmit signal into a plurality of split signals;

a delay module coupled to the splitter and operable to apply at least one delay to at least one of the plurality of split signals to yield a plurality of transmit diversity signals; and

a plurality of antennas operable to transmit the plurality of transmit diversity signals in order to process the plurality of transmit diversity signals, the transmit diversity signals comprising the information.

21. (Original) The system of claim 20, wherein the at least one delay comprises a delay in the range between 0.25 microseconds and ten microseconds.

22. (Original) The system of claim 20, wherein: the at least one delay comprises a first delay and a second delay, the first delay being less than the second delay; and the delay module further operable to: introduce the first delay at a first split signal of the plurality of split signals; and introduce the second delay at a second split signal of the plurality of split signals.

APPLICANT(S): LI, Yingxue et al.

SERIAL NO.: 10/696,988

FILED: October 30, 2003

Page 7

23. (Original) The system of claim 22, wherein the first delay comprises a delay in the range between 0.25 microseconds and five microseconds.

24. (Original) The system of claim 22, wherein the second delay comprises a delay in the range between 0.5 microseconds and ten microseconds.

25. (Original) The system of claim 20, wherein the delay module comprises a buffer operable to introduce the at least one delay.

26. (Original) A system for processing receive diversity signals, comprising:
means for receiving a downlink signal at a plurality of antennas of a mobile device,
the downlink signal comprising information;
means for generating a plurality of diversity signals associated with the downlink
signal, each of the plurality of antennas operable to generate a diversity signal of
the plurality of diversity signals;
means for applying a delay to at least one of the plurality of diversity signals, the
delay being less than one chip duration; and
means for processing the plurality of diversity signals using the delay to obtain the
information, the delay operable to allow at least two diversity signals associated
with the downlink signal to be distinguishable.

27. (Original) A system for processing transmit diversity signals, comprising:

means for receiving a transmit signal at a splitter, the transmit signal comprising
information;
means for splitting the transmit signal into a plurality of split signals;
means for applying at least one delay to at least one of the plurality of split signals to
yield a plurality of transmit diversity signals; and

means for transmitting the plurality of transmit diversity signals at a plurality of antennas in order to process the plurality of transmit diversity signals, the transmit diversity signals comprising the information.

28. (Original) A system for processing receive diversity signals, comprising:
 - a plurality of antennas operable to:
 - receive a downlink signal, the downlink signal comprising information; and
 - generate a plurality of diversity signal associated with the downlink signal, each of the plurality of antennas operable to generate a diversity signal of the plurality of diversity signals;
 - a plurality of filters, each filter of the plurality of filters coupled to an antenna of the plurality of antennas and operable to filter each of the diversity signals received from the plurality of antennas;
 - a delay module coupled to at least one of the plurality of filters and operable to apply a delay to at least one of the plurality of diversity signals, the delay being less than one chip duration, the delay comprising a delay of 0.4 to 0.8 microseconds;
 - an antenna combiner operable to:
 - sum the plurality of diversity signals after applying the delay; and
 - yield a combined signal comprising the delayed at least one of the plurality of diversity signals;
 - an analog-to-digital converter operable to convert the combined signal from analog mode to digital mode; and
 - a processor coupled to the delay module and operable to process the combined signal using the delay to obtain the information, the delay operable to allow at least one multipath signal associated with the downlink signal to be distinguishable, the processor comprising a baseband processor, the baseband processor comprising:
 - a rake receiver module operable to:

separate the combined signal in the time domain to yield a plurality of fingers, the plurality of fingers corresponding to the plurality of diversity signals, at least one finger of the plurality of fingers comprising the delay; and

coherently combine the plurality of fingers to yield a combined symbol signal, the combined symbol signal corresponding to the downlink signal; and

a decoder coupled to the rake receiver module and operable to decode the combined symbol signal to generate the information.

29. (Original) A system for processing a transmit signal, comprising:
- a splitter operable to:
- receive a transmit signal, the transmit signal comprising information; and
- split the transmit signal into a plurality of split signals;
- a delay module coupled to the splitter and operable to:
- apply at least one delay to at least one of the plurality of split signals to yield a plurality of transmit diversity signals, the delay module comprising a buffer operable to introduce the at least one delay, the at least one delay comprising a first delay and a second delay, the first delay being less than the second delay;
- introduce the first delay at a first split signal of the plurality of split signals, the first delay comprising a delay in the range between 0.25 microseconds and five microseconds; and
- introduce the second delay at a second split signal of the plurality of split signals, the second delay comprising a delay in the range between 0.5 microseconds and ten microseconds; and

a plurality of antennas operable to transmit the plurality of transmit diversity signals in order to process the plurality of transmit diversity signals, the transmit diversity signals comprising the information.

30. (New) The method of claim 1, wherein applying a delay to at least one of the plurality of diversity signals comprises applying a delay of between approximately 0.5 and one chip duration to at least one of the plurality of diversity signals.

31. (New) The system of claim 7, wherein said delay module is operable to apply a delay of between approximately 0.5 and one chip duration to at least one of the plurality of diversity signals.

32. (New) The method of claim 14, wherein applying at least one delay comprises applying at least one delay of between approximately 0.5 and one chip duration to at least one of the plurality of split signals to yield a plurality of distinguishable transmit diversity signals.

33. (New) The system of claim 20, wherein said delay module is operable to apply at least one delay of between approximately 0.5 and one chip duration to at least one of the plurality of split signals to yield a plurality of distinguishable transmit diversity signals.

34. (New) The system of claim 26, wherein said means for applying a delay comprises means for applying a delay of between approximately 0.5 and one chip duration to at least one of the plurality of diversity signals.

35. (New) The system of claim 27, wherein said means for applying at least one delay to at least one of the plurality of split signals comprises means for applying at least one delay of between approximately 0.5 and one chip duration to at least one of the plurality of split signals to yield a plurality of distinguishable transmit diversity signals.